HYDROS Thruster

Completed Technology Project (2016 - 2021)

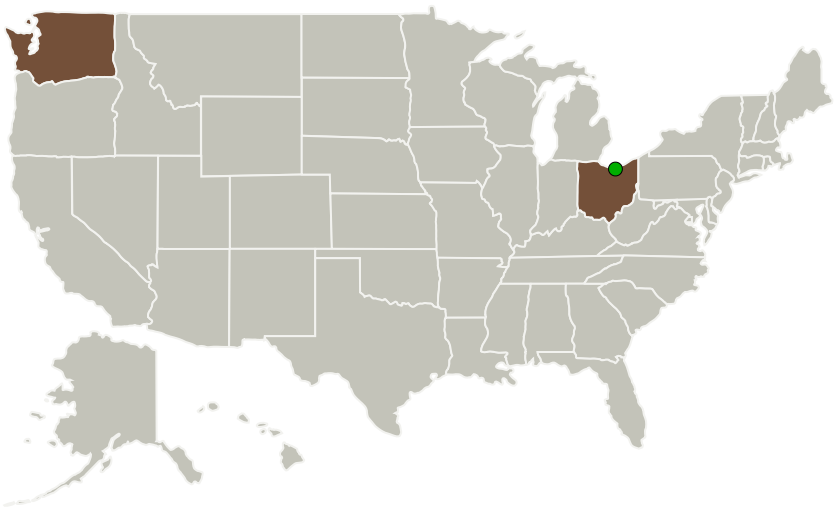
Project Introduction

The HYDROS is intended to provide safe, high-performance propulsion for secondary payloads. The propulsion system is launched with only liquid water as the propellant and then uses electrolysis to split the water into gaseous hydrogen and oxygen for a simple bipropellant thruster once deployed on-orbit.

Anticipated Benefits

Launching with only unpressurized liquid water as the spacecraft propellant precursor provides safety benefits and risk mitigation which allow the system to be included on CubeSats hosted on a wider variety of missions, including to the ISS and as secondary payloads, while still providing high thrust. The system also provides a potential platform for the future ISRU of water harvested in space for refueling.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Tethers Unlimited Inc	Lead Organization	Industry	
Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio

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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Tethers Unlimited Inc

Responsible Program:

Small Spacecraft Technology

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Primary U.S. Work Locations	
Ohio	Washington

Project Transitions

January 2016: Project Start

May 2021: Closed out

Closeout Summary: Cubesat thruster to be demonstrated on PTD1 in FY2019

Project Website:

https://www.nasa.gov/directorates/spacetech/small_spacecraft/index.html#.V(

Project Management

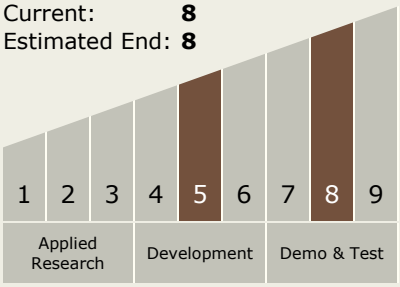
Program Director:
Christopher E Baker

Program Manager:
Roger Hunter

Principal Investigator:
Robert Hoyt

Technology Maturity (TRL)

Start: **5**
Current: **8**
Estimated End: **8**



Technology Areas

Primary:

- TX01 Propulsion Systems
  - TX01.1 Chemical Space Propulsion
    - TX01.1.2 Earth Storable

Target Destinations

The Moon, Earth, Others Inside the Solar System